AdChoices | Strut Replacement Parts | Strut Assembly | Strut Absorber

12-17-2005, 03:48 PM #1

BarnOwl
Super Member

Join Date: May 2005
Location: Hickory, NC
Posts: 10,029

BarnOwl's Photos

2000 SW2
1998 SL2

Strut Replacement With Pictures on a 2000 SW2

First let me say that I'm not an expert at this. In fact, this is the first time I've done it. There could well be better ways to do this. If you have any suggestions please post them. We can all learn.

Some words about safety:

Please use safe jacking techniques. When you have the car up on stands go around it try to knock it off. If you manage to, you may have just saved yourself a serious injury.

Doing this job involves handling compressed coil springs. Be careful and treat them as if they could bust loose at any time.

How-To

Jack the front of the car up and loosen the two strut to knuckle bolts at the bottom of the strut. Do not remove the bolts at this time.

Front side of bottom bolts.
Back side of bottom bolts with ABS bracket.

On some models the bracket is riveted to the strut and the rivet will have to be drilled. The KYB struts came with a hole for this bracket.

Remove the strut to body nuts at the top of the strut. These bolts are supposed to be replaced when they are removed. However, the dealer didn't have any and members of the forum said they can be reused, so I reused them. DO NOT remove the large nut in the center of the strut at this time.

Removing the strut to body nuts.

Disconnect the ABS sensor, place a rag over the CV joint boot to protect it and remove the bottom bolts.

Removing bottom bolts.

Note that I've pulled one of the grommets holding the ABS sensor wire out of the bracket. I did this before observing that the bracket wasn't riveted to the strut. It was completely unnecessary on this car.

The strut will come out of the car as a complete assembly spring and all. Now place your spring compressors on the spring.

Spring compressors on front strut assembly spring.

This was the first time I'd done this and it worked fine. However, it would have been better to put the spring compressors on facing the other way.

Tighten the spring compressors one at a time switching about every ½ inch. Until you can move the spring up and down in the strut assembly. I did it with an impact wrench. It looked like it would be a PITA with hand tools.

Once the spring is compressed, use a T-45 torx wrench to hold the strut rod and remove the center nut with a 22mm box end wrench. If you aren't expecting it, you will get a big surprise when you pull off the strut mount.

Strut bearings
More strut bearings

This was one thing that I couldn't find much information about. I knew there were loose bearings in there, but I wasn't sure where. Now I know. I suggest you pull that mount over a container to catch the bearings like I did on the second strut. After gathering up all the bearings, complete disassembling the strut assembly. If you aren't replacing springs, you can leave the bottom part of the strut mount in the spring.

Strut assembly parts.

Clean and repack the bearings with grease. I used silicone grease because it was nice and thick to hold the bearings in place. Then reassemble the strut assembly with the new struts. There seems to be some disagreement about turning the strut rod. The FSM says to turn the strut rod to torque the rod. Several other sources I've seen say that turning the strut rod is a no-no. So, to be on the safe side I used a crowsfoot wrench. On the KYBs a 6mm hex holds the rod and the new nut is a 19mm.

Torquing the front strut.

The nut is supposed to be torqued to 37 ftlbs. However, my engineering training got the best of me here. The crowsfoot adds about an inch of leverage to the torque seen by the torque wrench. So the wrench is actually seeing 13 inch lbs rather than foot lbs. My calculations said that to apply 37 ftlbs at the nut, I needed to set the wrench to 34.15 ftlbs. So, I set it a little over 34 ftlbs. That's probably overkill on torquing, but that's what I get for having engineering training.

Reassembled strut assembly.

In the above picture the top of the strut is 180 degrees out from where it needs to be when the strut is in the car. I found on subsequent struts it's better to put things together approximately in the orientation they are going to be in when the strut goes back on the car.

To put the strut back on the car put the top part of the strut assembly into place and put the strut to body nuts in place a few turns. Don't torque them down yet.

Get the bolts in place on the bottom part of the strut. Remember the knuckle can be moved up and down as well as in and out. A good sized punch is helpful getting the holes lined up. Once the bottom bolts are in place god ahead and torque them down. They should be tightened to 121 ftlbs. In other words pretty darn tight.

After the bottom bolts are in you can tighten the strut to body bolts to 21 ftlbs.

I didn't intend to add anything about the second front strut because it should be just like the first one. However, I hit an interesting snag.

Cap on second strut.

There was a cap on the second strut that I didn't see on the first one. The paint on the first strut made it clear that there had been a cap there. So, I started looking for it.

Found it!!!

What a PITA!!! A little work with a utility knife got it out without pulling the strut back off thank goodness!!!

Cap off.

On to the rear struts. The main difference between the rear struts and the front struts on the SW2 is the fact that you have to remove the strut to body bolts from inside the car.

This cover has to be removed.

Pry it off carefully with a screwdriver there are 6 clips that have to be popped to get it off. The following pictures show the cover and what's under it.

Underside cover
Under cover 1
Under cover 2

Once the interior is ready, it's time to get the rear wheels off and loosen the lower bolts, but I hit a snag.

Sheesh!!!

Looks like I'll be doing a stud replacement How-To as well. We'll skip that here.

Loosen the strut to knuckle nuts and support the knuckle with a floor jack. Just support it don't lift it.

Jack holding the knuckle.

Now you need to take the seatbelt loose to get to the strut to body bolts. A wobble extention is very helpful doing this.

Romoving seatbelt

Take loose the strut to body bolts. Again a wobble extention helps.

After the top nuts are loose lower the jack and remove the strut to knuckle bolts and remove the strut assembly. Disassembling reassembling the rear strut assembly is very similar to the front. Thankfully there's no bearings to deal with. So, I'll just provide pictures. You'll note that I have the compressors turned the other way this time.

Strut assembly with compressors attached.
Disassembled strut assembly.
Reassembld strut assembly.

The FSM says to put the strut to knuckle bolts in and then jack the knuckle up to get the strut to body nuts in their holes, but I thought my chances of hitting that first try were zilch. So, I got my wife to get in the car, guide the strut in

and place the strut to body nuts on a few threads. Then I put on the strut to knuckle bolts.

Getting ready to put on the strut to knuckle bolts.

Note that the rear sway bar bracket (lower left in pic) attaches to the strut bolts. Once the bolts were in they were torqued to 121 ftlbs.

Then torque the strut to body nuts.

I hit a snag trying to get the seatbelt back on. It had pulled in enough of the belt that it wouldn't go back on and it wouldn't release it. According to the FSM the seatbelt module must be level and pull in one inch of belt to release. Sure enough that did it.

Continued....

...
There is nothing more frightening than ignorance in action.

REWARD EXCELLENCE!

Rate the quality of this post and help *BarnOwl* reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!

quote

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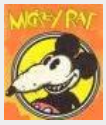
12-18-2005, 09:01 AM #2

BarnOwl
Super Member



Join Date: May 2005
Location: Hickory, NC
Posts: 10,029

BarnOwl's Photos

2000 SW2
1998 SL2

Re: Strut Replacement With Pictures on a 2000 SW2

Once you've done the other strut you can put the wheels on and get the car on the ground. You'll need to get an alignment. The KYB's bottom bolt hole is slotted and can be used to adjust the camber. Your replacement struts may or may not have this feature. Make note of whether they do so you can tell the shop. Otherwise you might wind up paying extra for a camber kit.

...
There is nothing more frightening than ignorance in action.

REWARD EXCELLENCE!

Rate the quality of this post and help *BarnOwl* reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!

quote

12-18-2005, 09:18 AM #3

BarnOwl
Super Member

Join Date: May 2005
Location: Hickory, NC
Posts: 10,029

BarnOwl's Photos

2000 SW2
1998 SL2

Re: Strut Replacement With Pictures on a 2000 SW2

Rereading this after it's been posted I can see I messed up one link. So, in case you didn't guess, here's where I found that missing cap.

Found it!!!

...
There is nothing more frightening than ignorance in action.

REWARD EXCELLENCE!

Rate the quality of this post and help *BarnOwl* reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!

quote

03-14-2008, 11:42 AM #4

serenitythen
Member

Join Date: Jun 2005
Location: Pacific Northwest
Posts: 383

serenitythen's Photos

1997 SL2

Re: Strut Replacement With Pictures on a 2000 SW2

Great write-up. Pictures helped alot.
THANKS!!!

REWARD EXCELLENCE!

Rate the quality of this post and help *serenitythen* reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!

quote

03-18-2008, 05:31 PM #5

angelaw
Member

Join Date: Jul 2006
Location: Brooksville, FL
Posts: 446

angelaw's Photos

1996 SL1
2002 SL2

Re: Strut Replacement With Pictures on a 2000 SW2

Make sure you get the rubber cushion lined up correctly between the coil spring and the strut mount.

Wrong Way

Right way

REWARD EXCELLENCE!

Rate the quality of this post and help *angelaw* reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!

quote

05-10-2009, 09:46 AM #6

mrbios
Member

Join Date: Sep 2005
Location: San Diego, CA
Posts: 187

1997 SW2

Re: Strut Replacement With Pictures on a 2000 SW2

Thanks in advance for that great post and pictures! I'm about to tackle the struts and coils on my 1997 sw2 which I bought new. The car now has 132K on it and the struts have been tired for some time.

I didn't know about the bearings - thanks, I'll use a bucket when I take the "hat" off the strut.

Paul

REWARD EXCELLENCE!

Rate the quality of this post and help *mrbios* reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!

quote

05-21-2009, 01:44 PM #7

mrbios
Member

Join Date: Sep 2005
Location: San Diego, CA
Posts: 187

1997 SW2

Re: Strut Replacement With Pictures on a 2000 SW2

05-21-2009

Key Statics:
Bought new in 1996.
Current miles: 132,000
Struts & coils: original
Age 13 years
Condition after removal: oil seal still working - no leaks, but all gas was gone - push strut rod down and it stays down.

Sturt tower bearings & rubber: good condition, reused.

I just changed the front struts on my 1997 saturn sw2 (Generation 2) with Monroe Sensa-Trac Struts and McQuay-Norris variable rate coil springs (Part# FCS664V). The springs are great the car is much better of bumps now. The control in hard corning is greatly improved.

No Strut CAPS: my struts did not have caps to hold the boot in place - that is accomplished with a metal lip on the strut.

Bearings:
Compress the coil spring, then put vicegrips on the shaft to hold it and remove the nut. Saturn uses a weird star / torx to hold the shaft in place the vice grip works great and it doesn't matter if the shaft scratches since the strut is being replaced.

Stand the strut up or on the side gently pry the rubber "hat" off the top of the coil. Seperate the rubber and plactic cage for the bearings - no need for a bucket.

Clean the bearing cage to keep dirt from getting in. Gently twist open and add some grease.

Reassemble - using whiteout markes and reinstall.

See my photos.

Safety TIP:
craftsman coil spring compressor tool $50 (purch 2008 and made in the USA, don't trust cheap foreign comprssors where the threaded rod is warped even when new)

REWARD EXCELLENCE!

Rate the quality of this post and help *mrbios* reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!

quote

05-21-2009, 03:23 PM #8

mrbios
Member

Join Date: Sep 2005
Location: San Diego, CA
Posts: 187

1997 SW2

Re: Strut Replacement With Pictures on a 2000 SW2

McQuay-Norris variable rate coil springs (Part# FCS664V for car with AC if no AC order FCS662V) both purchased at Kragen / O'Reilly. Note coil springs are sold in pairs and cost $70 for the pair. I paid $64 for each strut at Kragen.

See my photos.
http://www.wecandobetter.com/dnload/...sReplace05-09/

Last edited by mrbios; 05-21-2009 at 03:30 PM..

REWARD EXCELLENCE!

Rate the quality of this post and help *mrbios* reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!

quote

05-27-2009, 05:30 PM #9

mrbios
Member

Join Date: Sep 2005
Location: San Diego, CA
Posts: 187

1997 SW2

More Pictures Strut replacement Saturn SW2 SensaTrac & McQuay-Norris Coil Springs

Strut tower alignment

Front Strut Pictures

Rear Struts

REWARD EXCELLENCE!

Rate the quality of this post and help *mrbios* reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!

quote

05-28-2009, 07:15 PM #10

MikeNW
Master Member

Join Date: Apr 2008
Location: Lower Alabama= God's country, if God wanted mosquito and red ant bites, and to be covered in mildew
Posts: 3,438

MikeNW's Photos

1997 SL

Re: Strut Replacement With Pictures on a 2000 SW2

Thank you for the effort and photos.
This will really help me at some future time!

...
97 SL. Born 6/5/97, bought 7/7/97
08 Burgman 400
02 Haro MTB- can't kill it, still trying though

The Schofield Kid: Yeah, well, I guess they had it coming.
Will Munny: We all got it coming, kid.

REWARD EXCELLENCE!

Rate the quality of this post and help *MikeNW* reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!

quote

05-28-2009, 09:58 PM #11

mrbios
Member

Join Date: Sep 2005
Location: San Diego, CA
Posts: 187

1997 SW2

Re: Strut Replacement With Pictures on a 2000 SW2

Quote:

> Originally Posted by **MikeNW**
> *Thank you for the effort and photos.*
> *This will really help me at some future time!*

Your welcome! I appreciate the feed back. Here is a short video clip it is 24MB and may take a few minutes to play:

Vidoe of Front Strut - Proper alignment

This is The folder where the pictues and video file are saved Look for *.mov right click and choose save.

REWARD EXCELLENCE!

Rate the quality of this post and help *mrbios* reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!

quote

05-28-2009, 10:54 PM #12

mrbios
Member

Noise is gone after replacing front struts, 1997 sw2

Join Date: Sep 2005
Location: San Diego, CA
Posts: 187

1997 SW2

One last item. I had a mysterious noise coming from the front of the car on the passenger side down low. I replaced the passenger side fron CV axle but the noise remained.

After replacing the front struts the noise is gone.

Conclusion: the noise was coming from the Right Front Strut. It was a dull noise that was hard to hear and happened with the engine on or off and in neutral or in any gear. It sounded like someone tapping the bottom of the car with a rubber mallet.

REWARD EXCELLENCE!

Rate the quality of this post and help *mrbios* reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!

quote

08-10-2009, 10:13 PM #13

sbr65nj

Junior Member

Join Date: Jul 2009
Location: Freehold, NJ (hometown of Bruce Springsteen)
Posts: 30

2000 SL2
1997 SL2

Re: Strut Replacement With Pictures on a 2000 SW2

Thanks Mrbios. Your video saved my sanity. I would will you my first born, but he would not be too happy with that. The alignment of the hole and the bolt with the notch is not something that they tell you about in the manuals.

REWARD EXCELLENCE!

Rate the quality of this post and help *sbr65nj* reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!

quote

08-11-2009, 01:25 AM #14

mrbios

Member

Join Date: Sep 2005
Location: San Diego, CA
Posts: 187

1997 SW2

Re: Strut Replacement With Pictures on a 2000 SW2

> Quote:
> Originally Posted by **sbr65nj**
> *Thanks Mrbios. Your video saved my sanity. ...*

Your welcome! I've learned so much on this forum; I feel good giving something back.

Paul

REWARD EXCELLENCE!

Rate the quality of this post and help *mrbios* reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!

quote

08-11-2009, 12:26 PM #15

sbr65nj

Junior Member

Join Date: Jul 2009
Location: Freehold, NJ (hometown of Bruce Springsteen)
Posts: 30

2000 SL2
1997 SL2

Re: Strut Replacement With Pictures on a 2000 SW2

I have hit a bit of a snag. After installing the rebuilt strut I can not seem to install the assembly into the steering knuckle. No matter how hard I push it down it will not seem to install properly. Any advise is most welcome and appreciated.

REWARD EXCELLENCE!

Rate the quality of this post and help *sbr65nj* reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!

quote

08-12-2009, 01:34 AM #16

mrbios

Member

Re: Strut Replacement With Pictures on a 2000 SW2

> Quote:
> Originally Posted by **sbr65nj**
> *I have hit a bit of a snag. ....*

Could you post or email me a photo. Hold the strut and have someone else take the pictures. I am assuming you inserted the strut and tightened the 3 bolts at the top? Could you have mixed up left/right struts?

Join Date: Sep 2005
Location: San Diego, CA
Posts: 187

1997 SW2

Also, take a breather. It is easy to jab the cv boot or damage the brake line so slow down take a step back to re-think your approach. Struts, as with any repair, can be frustrating and involve some surprises

REWARD EXCELLENCE!

Rate the quality of this post and help *mrbios* reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!

quote

08-12-2009, 10:05 PM #17

sbr65nj
Junior Member

Join Date: Jul 2009
Location: Freehold, NJ (hometown of Bruce Springsteen)
Posts: 30

2000 SL2
1997 SL2

Re: Strut Replacement With Pictures on a 2000 SW2

OK, boy am I embarrassed and feel stupid. My houses garage fell down in the 1970s well before I bought it. As such I work in the street in front of my house. The result of this is that I usually work on one wheel at a time.

I only had one wheel jacked up. I ignored Stu's (me) 1rst rule of mechanics. If it doesn't fit right, I probably am missing something really stupid. So live and learn.

Moral of the story

IF YOU WANT YOUR STRUTS TO FIT IN YOUR CAR GET BOTH WHEELS OFF THE DARN GROUND.

REWARD EXCELLENCE!

Rate the quality of this post and help *sbr65nj* reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!

quote

08-13-2009, 02:02 PM #18

mrbios
Member

Join Date: Sep 2005
Location: San Diego, CA
Posts: 187

1997 SW2

Re: Strut Replacement With Pictures on a 2000 SW2

> Quote:
> Originally Posted by **sbr65nj**
> *OK, boy am I embarrassed ....*

I'm glad everything worked out. and I give you cudo's for working in the street.

REWARD EXCELLENCE!

Rate the quality of this post and help *mrbios* reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!

quote

10-07-2009, 07:30 PM #19

Sinister
Member

Join Date: Mar 2009
Posts: 56

Re: Strut Replacement With Pictures on a 2000 SW2

Great write up, this will be very helpful in the near future.

REWARD EXCELLENCE!

Rate the quality of this post and help *Sinister* reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!

quote

02-26-2010, 12:22 AM #20

mrbios
Member

Join Date: Sep 2005
Location: San Diego, CA
Posts: 187

1997 SW2

Re: Strut Replacement With Pictures on a 2000 SW2

> Quote:
> Originally Posted by **tam85**
> *....brake rotor, axle etc are not that easy. it usually takes about 4-5 hours.*

I changed the struts on my '97 sw2 & my wife's 2001 honda civic at about 130K on each car (original struts and we are the original owners) and learned some interesting lessons...

When? At around 60K miles if you are a mellow driver like me and my wife your struts are ready to retire. But, most people don't and as a result the handling suffers and especially bottoming out over speed bumps etc - after installing new struts I have experienced ZERO bottom outs!

The front on both cars was not that bad. The axle and brake rotor / caliper etc did NOT need to be removed. The job involves some danger to your fingers and body if the spring gets loose.

Now onto the interesting parts...

I replace all 4 struts on both cars. My saturns struts were really tired. My wife's civic had a leaking strut in front and so the front of the car bottomed out easily as it was mush. Changing rear struts of the civic were very difficult. The top and bottom are offset and you have to remove carpet in the trunk! Also, the REAR struts in the civic were like brand new after 120K miles so changing them was a waste of time and money.

The rear struts in my saturn were badly worn. Now my saturn handles great!!

Coil springs... I replaced the front coils with Mcay Norris, which got rid of the sag. The spring was wound differently than the factory. I get a "click" over bumps and rubber noise from the strut tower when turing into a parking space.

Strut Tower Bearings: both cars were in like new condition and you don't need to worry about changing them.

It took about 1 hr for each front strut on both cars - but due to the issue trying to get the mccay noris I removed and refited one or both but they still are really right. My wifes car came out perfect but aligning the rear struts took like 4+ hours - you really should make an alignment template before dissemblying them.

Happy strutting!

Last edited by mrbios; 02-26-2010 at 12:27 AM..

REWARD EXCELLENCE!

Rate the quality of this post and help *mrbios* reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!

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